Manitoba
Natural Resources
Forestry

THE FORESTRY BRANCH

FOURTH ANNUAL REPORT

1986 - 1987

MANITOBA NATURAL RESOURCES

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FORESTRY BRANCH FOURTH ANNUAL REPORT - 1986 - 1987

INTRODUCTION

The Forestry Branch achieved a significant level of success during the course of the fiscal period ending March 1987. These events were, for the most part, associated with the delivery of the forestry initiatives program, specifically the Manitoba Jobs Fund Sectoral Project in Forestry and the Canada/Manitoba Forest Renewal Agreement.

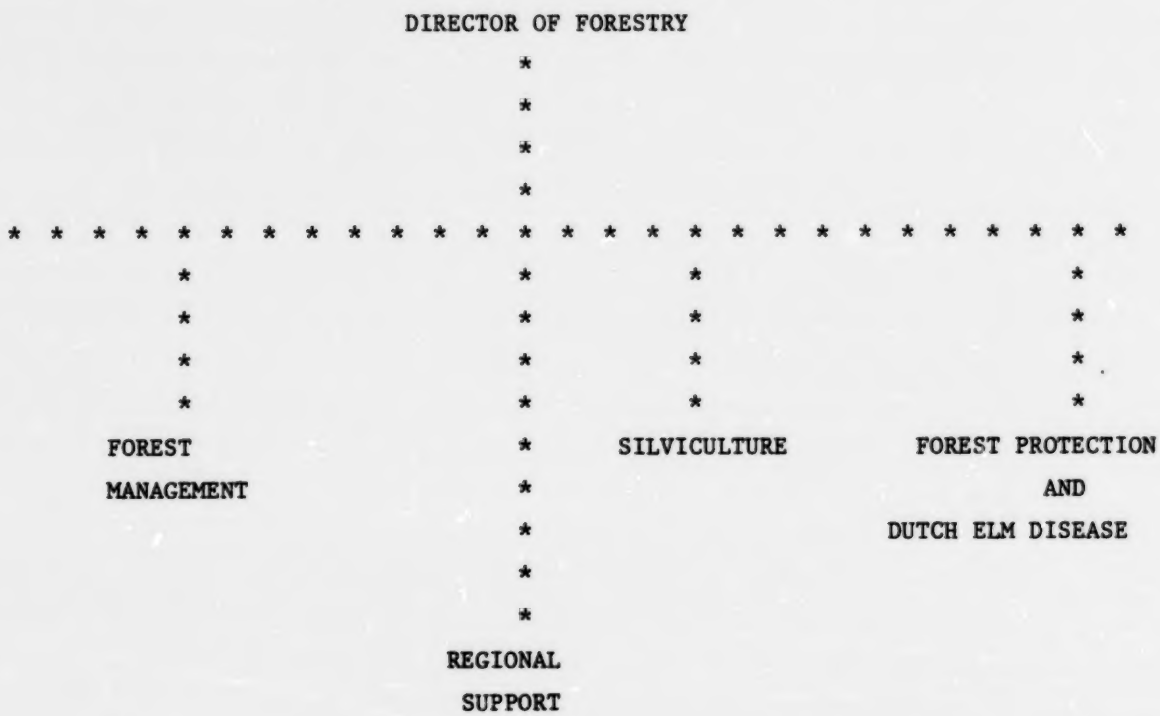
The Forest Renewal Agreement requires that an interim evaluation be carried out. To achieve this, the directorate of the Agreement appointed a green ribbon committee representing industry, the federal and provincial governments and forestry academia. The committee consisted of four representatives - one from each of these forestry sector areas. They came from across Canada and represented a fairly wide spectrum of forestry interests and responsibilities. The Green Ribbon Committee actively pursued their tasks and a very worthwhile process was developed to evaluate the first two and a half years of the Agreement and to provide direction for the directorate in respect of the delivery of the remaining two and a half years of the agreement.

February 11, 1987 marked the date that the first five year report on the status of forestry was tabled in the Legislature. The five year report is a requirement of The Forest Act and represents the first five year evaluation of forestry activities since the completion of the Manitoba 20 Year Forest Management Plan, 1981 - 2000. Generally speaking, the status of the resource is in much better shape after five years of forestry management activities than in 1980/81 when the 20 Year Management Plan was completed. Many of the recommended activities have been undertaken and are being delivered at the level needed to ensure that the forest resource and timber requirements of the industry will be met. It is imperative however, that the level of growth in programs and the expenditures made on forest renewal and intensive forest management practises during the five years just completed be maintained throughout the remaining 15 years of the 20 Year Plan.

It is appropriate at this time to compliment the Forestry Branch staff members at all levels, on the high degree of professionalism that has been maintained in meeting the challenge of delivering the kind of programs and

projects that will ensure the continued growth and viability of the forestry sector in Manitoba. Without the dedication to deliver the services and programs in a cost effective manner, the achievements that have been experienced during the past five years would never have been reached.

The organizational structure of the Branch has undergone some realignment in the past year to respond to downsizing of department staffing levels in some areas and also to take advantage of new technology and focus the direction of branch activities in a more efficient streamlined and cost-saving manner. It is anticipated that these structural changes in the organization of the branch will continue during the upcoming year to take advantage of the top quality staff that exist in the branch and to form a highly efficient organization.



A more detailed organization chart is found attached to the last page of this report.

ADMINISTRATION

The Administration Section of the Forestry Branch is responsible for the full operation and co-ordination of all administrative services within the Branch. This includes the financial commitment system, personnel, budget estimates, cash flows, computer coding, departmental equipment, vehicle requirements, accounts payable and receivable, and contracts. The Section also co-ordinates the administrative requirements for five regional offices, three district offices and three nursery offices.

This Section maintained financial control and accountability for the provincial share of the Canada/Manitoba Forest Renewal Agreement and Manitoba Jobs Fund Sectoral Project in Forestry.

The Forestry Branch 1986/87 fiscal year budget was allocated and expended as follows:

CURRENT BUDGET	SY's	BUDGETED	EXPENDED
A) Administration	6.0	248.7	248.1
B) Forest Inventory	19.0	714.0	719.2
C) Timber Management & Development	9.0	299.0	268.1
D) Silviculture	7.0	1126.5	1135.4
E) Forest Protection	27.35	2006.4	1983.6
F) Regional Management	22.0	925.8	930.4
G) Forest Renewal - Northern Development Agreement	16.33	2008.8	2010.1
Sub Total Current Budget	107.16	7329.2	7294.9
On Going Capital - Equipment	-	30.0	25.4
Canada/Manitoba Forest Renewal Agreement	1.0	3776.5	3541.9
Manitoba Jobs Fund Sectoral Project	11.0	4383.9	4287.0
Total Forestry Budget 86/87	119.16 SY's	$ 15519.6	$ 15149.2

The third annual Forestry Branch meeting involving all staff was held on September 15,16 and 17, 1986 in Winnipeg and the Southern Region. The meeting included business sessions and technical workshops. The field tour showed various forest renewal activities in the Southern Region.

FOREST MANAGEMENT

Effective November 24, 1986 a realignment of Section responsibilities within the Forestry Branch was implemented. The Forest Inventory Section and the Timber Management and Development Section were grouped as operating units of Forest Management. The position of Chief of Forest Inventory was designated Chief of Forest Management. The Timber Administration unit was grouped as an operating unit under Forestry Administration.

FOREST INVENTORY

Forest Inventory reports summarizing forest conditions and wood volumes available for annual harvest were completed for three Forest Management Units. They include Forest Management Unit 01 (Winnipeg), 02 (Portage la Prairie) and 07 (Shoal Lake) in the Aspen Parkland Forest Section of Southwestern Manitoba. The activities completed the forest survey of the Aspen Parkland Forest Section.

Forest survey crews collected forest measurement data required for the revision of the stand/stock volume tables representing the West half of the Lake Winnipeg East Forest Section.

The "FORIST" System (Forestry Geographic Information System) achieved the operational mode on August 28, 1986 with the completion of the basic computer program and data input requirements for the 20 township (1,900 Km^2) training and test area in the Pineland Forest Section. As of March 31, 1987 over 90 percent (8,229 Km^2) of the first Forest Management Unit (FMU 20) had been entered into the system.

Permanent sample plots designed to track forest changes over time are being established in representative forest stands across the Forest Zone of the Province. The plots are located in both natural stands and plantations to provide the range of growth rates in volume being achieved in the Province. Permanent plots will be remeasured at five year intervals to establish the growth trends and to permit prediction of volume accumulations in the future.

TABLE 1: FOREST INVENTORY PROJECTS
1986 - 1987

ACTIVITY	AREA IN SQUARE KILOMETRES
Aerial Photography	13,470
Forest Cover Mapping	14,910
Air Photo Interpretation	11,970
Forest Surveys	14,410
Area Compilation (FORIST)	8,220
Forest Inventory Reports	34,370
Township Air Photo Mosaics	76,460

Each of the Forest Inventory Projects is described in further detail below:

AERIAL PHOTOGRAPHY

The east portion of the Lake Winnipeg East Forest Section, FMUs 31, 36 and 37 were photographed for an area of 13,470 Km^2. Gaps in the photo coverage from the 1985/86 contract in the Nelson River forest section were completed.

MOSAICS

Eight hundred and twenty air photo mosaics covering an area of 76,460 Km^2 were assembled and photographically copied under the Jobs Fund Sectoral Projects for 1986/87. Negatives for each mosaic located in portions of the Aspen Parkland, Mountain, Pineland, Lake Winnipeg East and Nelson River Forest sections were placed in the Survey Branch facilities so that copies could be sold to interested individuals and agencies.

PHOTOTYPING

Forest cover was delineated on new aerial photography on a "definition of change only" basis for Forest Management Units 83, 84, 85, 87 and North portion of 82 in the Nelson River Forest Section covering a total of 19,660 Km^2.

PRELIMINARY FOREST COVER MAPPING

Areas completed include a portion of FMUs 82, 83, 84, 85 and 87 for a total area of 14,910 Km^2. Difficulties were encountered due to the many changes that had occurred and the original phototyping (contracted activity in the 1960s) which had been carried out. Care was required in order to ensure that required improvements in stand boundary definition were made.

PHOTOINTERPRETATION

Areas completed cover portions of Forest Management Units 35, 36, 37, 39, 82, 83, 84 and 87 in the Lake Winnipeg East and Nelson River Forest Section for an area of 11,970 Km^2. Difficulties encountered in preliminary forest cover mapping impacted photointerpretation activities in a similar manner. Stand boundaries determined under contractual arrangements proved to be difficult to agree with using present techniques. Photointerpretation covered the full

range of species composition as implemented in the southern portion of the Province as well as productivity site class, maturity class and stand density.

FOREST SURVEYS

a) INVENTORY

Surveys were carried out in the Lake Winnipeg East Forest Section on a limited basis. The area involved covered 14,410 Km^2. A total of 257 temporary plots were established during the forest survey.

b) GROWTH AND YIELD

Fifty-three permanent sample plots were established in the Pineland Forest Section in both natural stands and plantations. The plot locations selected for determining Manitoba's forest growth rates are in very young stands primarily of one species on representative growing sites. The average number of trees found on the plots established was 215 with a maximum of over 900 trees on the most heavily treed plot.

FORIST (Forestry Geographic Information System)

U.T.M. co-ordinates for township corners for the Pineland Forest Section and a strip of townships following a North-South connection line running from Victoria Beach to Deer Island in Lake Winnipeg were determined by Surveys Branch and entered into FORIST to provide the necessary basic control for future data entry activities.

Full operational startup of the system occurred on August 28, 1986 with the completion of basic procedure development in the twenty township test area. By March 31, 1987, 90 map sheets had been completed and work was in progress on an additional 21. In addition to Forest Management Units 20 and 23 in the Pineland Forest Section, work had commenced in the Whiteshell Provincial Forest (FMU 30), the first of the units to be entered in the Lake Winnipeg East Forest section.

WILDFIRE MANAGEMENT

All area and volume loss reports were processed for the 1986/87 fire year. Further additional programs were prepared to provide for analysis of the data base on Fire Management IBM P.C. computers.

FIVE YEAR LEGISLATIVE REVIEW OF FORESTRY

Tabular presentations for Volume I and Volume II of the "Five Year Report" on the Status of Forestry were completed and presented on schedule. Opportunities to define comparisons for previous time periods were not numerous as this was the first report of its kind. In the written report, as many situations were commented on as the first summary basic data allowed. The second Five Year report will provide improved opportunity for comparison between time periods.

TIMBER MANAGEMENT AND DEVELOPMENT

Throughout much of 1986/87 the forest products industry continued strengthening markets as the trend carried over from late in the 85/86 fiscal year. Fuelled by still dropping interest rates and the weak Canadian dollar, prices either held or moved up throughout most of the year. This fiscal year was also highlighted by a strike in the British Columbia forest lumber sector and a countervail lumber duty action by the United States forest interests against Canadian lumber entering their country.

The pulp and paper markets firmed up throughout 1986/87. Newsprint prices rose to $570 (US)/ton and held. Likewise the kraft paper markets shot up as well. Prices for NBSK that were $400 to $450 (US) during 1985/86, rose to the $550 per ton (US) range for the first quarter of 1987. Part of this price rise is also attributed to the increasing value of offshore currencies versus the United States and the Canadian dollars.

The lumber markets firmed up slightly from the previous fiscal year. The SPF price per MFBM in US dollars, covered a much tighter range ($170 to $210 this fiscal year versus a $140 to $200 spread the previous year). This slight market improvement is attributed to the continuing decline of mortgage and interest rates, the weak Canadian dollar against its US counterpart, and a strike in the BC lumber industry.

Again the composite boards continued with a strong share of the market, mainly as a result of the same factors affecting lumber. Interest in a provincial plant continued with a variety of inquiries for potential wood supplies from within Manitoba.

The United States-Canada trade irritant respecting Canadian softwood lumber exports to the USA reached the boiling point this year. Here, US lumber interest filed a countervail duty petition against Canadian lumber which in turn activated a series of inquiries and hearings. It did not look good for a "no duty" final ruling in favor of Canada and as a result, a negotiated settlement was reached late in December of 1986. Here Canada agreed to self-impose a 15 percent surtax on lumber entering the USA. At fiscal year end, the tax had not yet become law and opponents to this settlement had voiced concerns about the weakness of the settlement. One of the conditions of the agreement or settlement was that the provinces are to develop Replacement Measures for the federal 15 percent surtax on lumber entering the USA. Several high level provincial meetings on this issue have occurred but as yet, no replacement measures have been agreed to.

Little development occurred within the Manitoba forest products manufacturing segment of the industry this year. Manfor exhibited perhaps the most interest with the sawmill steadily gaining output after a major redevelopment the year before. However, much of this overall market strengthening did not translate into large timber utilization increases within Manitoba as most of the regional mills were already running at or near capacity.

TIMBER UTILIZATION

The harvest of timber from provincial crown lands totalled 1,669,132 M^3 for the 1986/87 fiscal year. This comprised 1,485,188 M^3 of softwood, and 183,944 M^3 of hardwood. This is 19,765 M^3 less wood than the previous year and represents a decline of 1.17%. The production of lumber, posts and round timber rose, but declines occurred in pulpwood, mine timber, railway ties, poles and fuelwood compared to last year.

The forest revenue declined to $2,965,595.75. This is down $102,601.23 from last year and is attributed to a revenue reduction in the fire suppression cost recovery category. Increases, however, were posted in all three timber cutting classes and nursery stock sales. This translates into an increase of approximately 10% for the provincial average cubic metre rate of timber dues.

The timber dues that were instituted on October 1, 1985 remained in effect throughout the 1986/87 fiscal year. This was as a result of minimal increases

in the Manitoba Forest Products Price Index, where it must vary the present dues by five cents or more before it is incorporated.

Timber permits issued this fiscal year totalled 5,961, a decline of 983 permits from the previous year. This is attributed to a reduction of interest in the cut-your-own firewood and other forest products programs on crown lands.

This was the fiscal year that the Timber Sale Quotas were reviewed and volume adjusted for utilization levels or cancelled for non-use based on the previous five years. This combined with some quota sale assignments resulted in 205 timber quota sales being in force as of April 30, 1987. This represents a decline of 16 quotas over the previous year and a 67.5% reduction from the 631 original timber sale quotas first issued in 1965.

Timber permit quotas remained at the 37 number level, and represents no change from the previous fiscal year.

No metric licence certification course was held this year. However, one is slated for the spring of 1987 in Swan River and a large attendance is anticipated as a number of inquiries were received through the year. A marked increase was also noted in the number of requests for information and or assistance on farm woodlots and Christmas tree production. This has also translated into one of the largest seedling orders from the provincial nursery for the provate woodlot program.

TABLE 2: SUMMARY OF TIMBER CUT ON CROWN LAND,

1986/87 (IN CUBIC METRES OF ROUND WOOD)

PRODUCT	SPECIES	CUBIC METRES		PERCENT
Lumber	Spruce, Pine, Fir Tamarac, Cedar	522,940		
	Poplar, Birch and other Hardwoods	75,228	598,168	35.84
		598,168		
Pulpwood	Spruce, Pine, Fir	889,376		
	Poplar	37,709	927,085	55.54
		927,085		
Railway Ties	Pine		1,388	0.08
Line Poles	Cedar, Pine, Tamarack, Spruce		182	0.01
Fence Posts	Cedar, Pine, Tamarack Poplar, Spruce, Oak		20,127	1.21
Round Timber	Spruce, Pine, Tamarack		23,986	1.44
Mining Timber	Pine, Spruce		157	0.01
Fuelwood	Birch, Poplar, Pine Spruce and other species		98,039	5.87
	TOTAL 1986/87		1,669,132	100.00
	TOTAL 1985/86		1,688,897	

TABLE 3: TIMBER CUT BY DEPARTMENTAL REGION, 1986/87

REGION	CUBIC METRES	PERCENT
NORTHEASTERN	167,326	10.02
NORTHWESTERN	479,834	28.75
SOUTHEASTERN	261,202	15.65
SOUTHWESTERN	3,782	0.23
EASTERN	309,318	18.53
INTERLAKE	74,872	4.49
WESTERN	372,798	22.33
	1,669,132	100.00

DIAGRAM ONE

TIMBER CUT BY DEPARTMENTAL REGIONS 1986/87

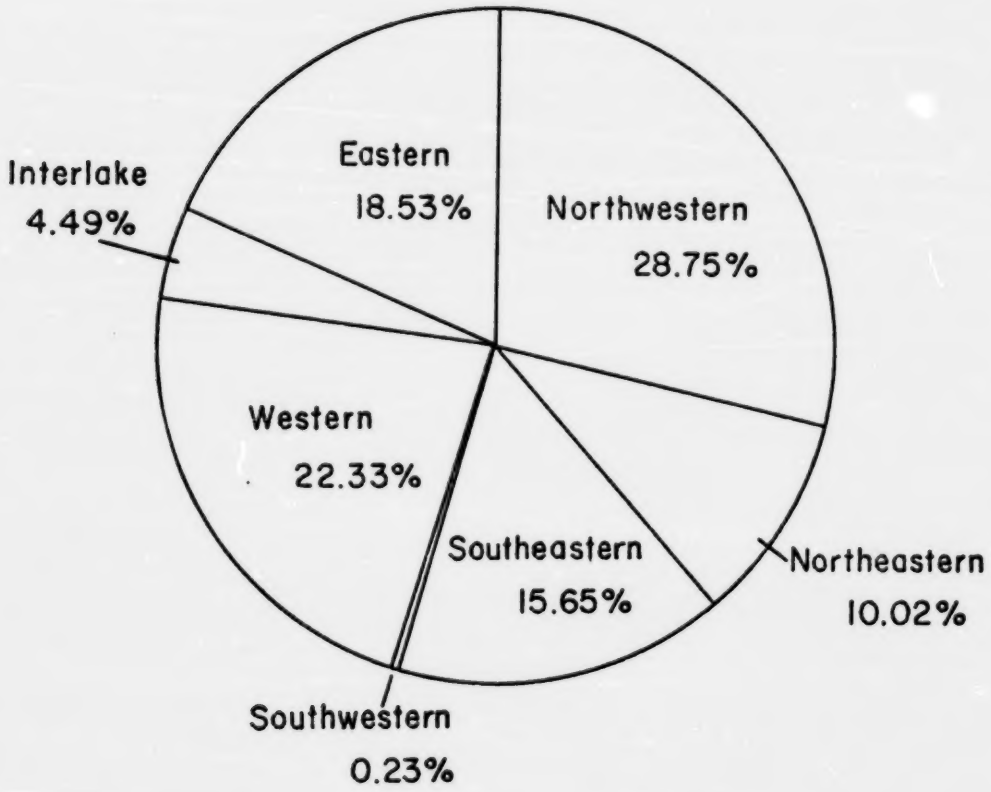


TABLE 4: RECORD OF TIMBER SCALED OR MANUFACTURED 1986/87

	LUMBER - CUBIC METRES								PULPWOOD - CUBIC METRES			
	METRES MINE TIMBER	CHRISTMAS TREES PIECES	SPRUCE	BALSAM	JACK PINE	OTHER SOFT WOODS	POPLAR	OTHER HARD WOODS	SPRUCE	BALSAM	JACK PINE	POPLAR
SUMMARY BY REGIONS												
Northeastern		30	43,709		28,763				51,331		33,075	
Northwestern	157	37	135,491		93,820		28	2	144,954		97,297	
Southeastern		6,737	322	12	33,543	1,283	40,242	1,841	53,977	2,851	52,480	36,806
Southwestern		50					40					
Eastern		9,887	4,135	2	7,716	47	2,766	1,638	224,438	494	53,843	684
Interlake		260	8,835	28	3,497	11	1,965		34,152	207	11,956	94
Western		1,548	131,926	280	29,379	141	24,344	2,362	98,560	355	29,406	125
TOTALS	157	18,549	324,418	322	196,718	1,482	69,385	5,843	607,412	3,907	278,057	37,709
SUMMARY BY STATUS OF LAND												
Prov. Forests												
AGASSIZ		735			953	51	2,289		5,988		428	17,915
BELAIR			(50 Cr)						144		1,218	
BRIGHTSTONE						17			62			
CAT HILLS					1,575		75		42		424	
CORMORANT			118									
DUCK MOUNTAIN		897	79,434	189	23,414		12,388	1,245	49,430		11,209	
N.W. ANGLE		1,765			28	200	20,648	585	10,590	500	237	843
PORCUPINE			37,338	90	5,307		544	340	44,374	355	17,847	
SANDILANDS		1,910	240		24,464	275	4,410	1,216	26,754	801	26,068	15,891
SPRUCE WOODS												
TURTLE MOUNTAINS												
WHITESHELL		17			5,894	111	5,442	2	7,668		23,752	700
TOTAL PROV. FOREST		5,324	117,080	279	61,635	654	45,796	3,388	145,052	1,656	81,183	35,349
OTHER PROV. LANDS	157	13,225	207,338	43	135,083	828	23,589	2,455	462,360	2,251	196,874	2,360
TOTALS	157	18,549	324,418	322	196,718	1,482	69,385	5,843	607,412	3,907	278,057	37,709

			LUMBER - CUBIC METRES						PULPWOOD - CUBIC METRES				
	METRES MINE TIMBER	CHRISTMAS TREES PIECES	SPRUCE	BALSAM	JACK PINE	OTHER SOFT WOODS	POPLAR	OTHER HARD WOODS	SPRUCE	BALSAM	JACK PINE	POPLAR	
SUMMARY BY METHOD OF DISPOSAL													
Permits		6,847	2,886	42	2,551	786	8,825	273	16,177	3,275	12,643	30,208	
Sales	157	11,661	150,968	280	76,149	696	57,852	3,939	229,027	632	85,314	7,501	
Berths			170,341		118,018		2,708	1,631	362,057		180,100		
Seizures		41	223						151				
1986/87 TOTALS	157	18,549	324,418	322	196,718	1,482	69,385	5,843	607,412	3,907	278,057	37,709	
					598,168						927,085		
1985/86 TOTALS	2,493	17,895	220,849	571	164,697	2,693	81,259	4,757	709,510	2,478	317,013	36,360	
					474,826						1,065,361		

	PIECE PRODUCTS-CUBIC METRES				FUELWOOD - CUBIC METRES					CUBIC METRES		
					GREEN							
	RAILWAY TIES	C.W. POLES	P.J. POLES	POSTS	SPRUCE	JACK PINE	POPLAR	OTHER HARD WOODS	DRY	SLABS AND TOPS	ROUND TIMBER	TOTALS
SUMMARY BY REGIONS												
Northeastern				9	1,422	3,203	1,032	526	4,224		32	167,326
Northwestern	574		1	186	240	300	1,803	1,102	3,802		77	479,834
Southeastern	798			2,220	609	1,659	14,892	7,304	5,058	2,390	2,915	261,202
Southwestern				62		130	2,705	412	285		148	3,782
Eastern			22	254	379	804	4,807	1,988	4,662	160	479	309,318
Interlake				1,680	65	1,225	3,018	1,252	4,623	982	2,166	74,872
Western	16		159	15,716	963	421	7,370	7,185	5,921		18,169	372,798
TOTALS	1,388		182	20,127	3,678	7,742	35,627	19,769	28,575	2,648	23,986	1,669,132
SUMMARY BY STATUS OF LAND												
Prov. Forest												
AGASSIZ	14			207	28	371	5,054	1,742	1,832	495	58	37,425
BELAIR				34		67	317	62	182		16	1,990
BRIGHTSTONE				1		12	390	115	337			934
CAT HILLS						25	75		12			2,228
CORMORANT				1	13	3	58	296	925		20	1,434
DUCK MOUNTAIN	4		160	258	12	247	2,343	4,178	1,272		16,380	202,163
N.W. ANGLE				583		22	232	947	87	37	191	35,730
PORCUPINE				14,613	39	7	745	1,105	3,708		897	127,309
SANDILANDS	467			961	25	872	7,135	3,468	1,270	1,653	1,475	117,445
SPRUCE WOODS				3		130	335		17		72	557

	PIECE PRODUCTS-CUBIC METRES			FUELWOOD-CUBIC METRES							CUBIC METRES	
				GREEN								
	RAILWAY TIES	C.W. POLES	P.J. POLES	POSTS	SPRUCE	JACK PINE	POPLAR	OTHER HARD WOODS	DRY	SLABS AND TOPS	ROUND TIMBER	TOTALS
SUMMARY BY STATUS OF LAND												
Prov. Forest												
TURTLE MTN.							40	72	55			167
WHITESHELL	317			45	575	172	935	261	486	150	78	46,588
TOTAL PROV. FORESTS	802		160	16,706	692	1,928	17,659	12,246	10,183	2,335	19,187	573,970
OTHER PROV. LANDS	586		22	3,421	2,986	5,814	17,968	7,523	18,392	313	4,799	1,095,162
TOTALS	1,388		182	20,127	3,678	7,742	35,627	19,769	28,575	2,648	23,986	1,669,132
SUMMARY BY METHOD OF DISPOSAL												
Permits	16		23	19,624	2,962	6,613	33,280	14,181	28,501	2,458	7,587	192,911
Sales	1,372		159	503	716	1,041	2,347	5,107	63	190	16,234	640,247
Berths						42		481	11		165	835,554
Seizures						46						420
1986/87 TOTALS	1,388		182	20,127	3,678	7,742	35,627	19,769	28,575	2,648	23,986	1,669,132
							98,039					
1985/86 TOTALS	5,043	7	420	17,075	2,906	8,699	34,226	23,389	39,218	2,123	13,111	1,688,897
							110,561					

TABLE 5

YEAR	TOTAL HARVEST (IN CUBIC METRES)	REVENUE[1]
1972/73	1,571,544	$ 811,851.80
1973/74	1,588,759	843,081.37
1974/75	1,932,383	924,586.53
1975/76	1,851,552	1,739,308.27
1976/77	1,519,998	1,345,601.02
1977/78	1,646,562	1,176,078.00
1978/79	1,714,300	1,292,180.63
1979/80	1,940,082	1,624,290.86
1980/81	2,320,031	1,908,776.72
1981/82	1,782,078	1,792,589.82
1982/83	1,478,092	1,383,734.70
1983/84	1,500,332	1,964,510.80
1984/85	1,673,031	2,302,339.73
1985/86	1,688,897	2,473,081.25
1986/87	1,669,132	2,682,289.37

[1] Dues in respect of Crown Timber Harvested

TABLE 6

SUMMARY OF ANNUAL FOREST PRODUCTION BY FOREST PRODUCT (IN CUBIC METRES)

1982/83 TO 1986/87

Year	Pulpwood		Lumber		Fuelwoood		Other		Total	
	Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
1982/83	787,879	53.3	518,062	35.1	111,555	7.5	60,596	4.1	1,478,092	100%
1983/84	837,756	55.8	509,476	34.0	102,474	6.8	50,626	3.4	1,500,332	100%
1984/85	1,201,970	71.9	330,228	19.7	103,593	6.2	37,240	2.2	1,673,031	100%
1985/86	1,065,361	63.1	474,826	28.1	110,561	6.5	38,149	2.3	1,688,897	100%
1986/87	927,085	55.5	598,168	35.8	98,039	5.9	45,840	2.8	1,669,132	100%

TABLE 7. A COMPARISON OF PERMITS, LICENCES AND QUOTAS ON CROWN LANDS (INCLUDING PROVINCIAL FOREST), 1985/86 and 1986/87

	1985/86	1986/87
1. Timber Dealers and Sawmill Licences		
Timber Dealers	53	65
Sawmill Licences	109	112
2. Permits and Licences Covering Timber Cutting Rights		
PERMITS	6,944	5,961
TIMBER SALE AGREEMENTS		
Awarded	194	41
Previously Awarded	58	162
TOTAL	252	203
3. Timber Seizures Recorded	14	12
4. Timber Allocations in Force at March 31		
Timber Sales	221	205
Timber Permits	36	37
TOTAL	257	242
5. Forestry Revenue (Crown Charges)	$3,068,196.98	$2,965,595.75

TABLE 8: A COMPARISON OF PERMITS AND LEASES
IN PROVINCIAL FOREST, 1985/86 AND 1986/87

	1985/86	1986/87
1. General permits and leases		
Sawmill sites	2	3
Trappers cabins	43	45
Hunting and fishing cabins	3	3
Other lodges, cabins, residences	4	2
Grazing fences	-	-
Maintain roads and/or spurlines	2	3
Youth groups (camping and sports)	5	5
Land use for municipal purposes	8	6
Land use for government purposes	4	5
Miscellaneous	26	30
TOTAL	97	102
2. Hay permits		
Number of permits	18	16
Tonnes of hay	234.65	236.86
3. Grazing permits		
Number of permits	3	3
Head of livestock	65	45

SILVICULTURE

The Forestry Branch and the forest industry maintained their 1986/87 silvicultural programs at the increased level that was reached the previous year. In total, approximately 13,170 hectares were treated with some form of silvicultural activity, a slight increase over 1985/86. Of this total, 47 percent of the programs were carried out by the forest industry with the remainder carried out by the Forestry Branch.

Approximately ten million bareroot and containerized seedlings were planted in the spring and fall of 1986. Of the approximately six million seedlings planted by the Forestry Branch, approximately 60 percent were done by tendered contracts with the balance being planted using departmental employees. As in the past years, the planting contracts have proven to be very successful and economical, and their use will probably increase in the future. All of the above seedlings were produced at the Pineland and Clearwater provincial nurseries with the exception of approximately 1.5 million seedlings which were grown by a private greenhouse contractor.

Mechanical site preparation for hand planting increased by 31 percent over 1985/86. This increase is a direct result of the expected increase in the number of seedlings being available for the 1987 planting program.

As in the past, both the Forestry Branch and the forest industry used herbicides on an operational and research basis for both site preparation and release of plantations from vegetative competition. These programs were carried out under strict monitoring and followed all safety rules and regulations identified by Manitoba Environment.

The Forestry Branch did not carry out any mechanical thinning or release programs due to the funding being committed to other silvicultural projects with a higher priority. The forest industry also reduced this type of program for the same reasons.

Silvicultural surveys were conducted on approximately 28,000 hectares of cutover and burned forested lands. This represented a substantial increase over 1985/86 and is a direct result of not only the need to monitor new and

existing plantations, but the need to identify non satisfactory stocked lands that require silvicultural treatments to bring them back into forest production.

PINELAND PROVINCIAL FOREST NURSERY

Pineland Provincial Nursery shipped approximately 5.86 million seedlings in the operational planting programs previously identified, in the woodlot program and in operational research planting programs carried out by the various sections of the Branch. To produce this number of seedlings, the 14 greenhouses were fully utilized on a two crop system.

The bareroot lifting was down from 1985 due to losses in the fields over the last several years. A major effort was made during the current year to improve the bareroot production. This included such methods as deep tilling the beds that have become too hard for proper seedling production, addition of peat moss to lower the pH of the fields, and transplanting some of the existing stock to improve the quality of the seedlings at the time of shipping.

Other major activities at the nursery included the start-up of construction of the cold storage building that will have the capacity of storing approximately ten million seedlings. Construction began on this building in the fall of 1986 and is scheduled to be completed in the fall of 1987.

An additional six reefer vans were purchased over the winter bringing the fleet up to nine. These reefers are used not only to transfer seedlings to the regions, but also for on-site storage at the planting location. Following the completion of the cold storage building and the purchase of the new reefers, the capability for storing and shipping the number of seedlings required for the future is available.

The nursery processed 922 hectolitres of cones in 1986 and extracted approximately 494 kilograms of seed.

CLEARWATER PROVINCIAL FOREST NURSERY

Clearwater Provincial Forest Nursery shipped 3.05 million containerized

seedlings to Manfor Ltd. and the northern and western regions. These crops were produced using the 16 greenhouses that were ready for operation. Other activity at the nursery was the completion of the final headerhouse and the final four greenhouses. This now completes the planned greenhouse development. The 20 operational greenhouses will now have a two crop capacity of approximately six million seedlings.

Two operational research trials were initiated during the fiscal year. This included the growing of seedlings under an extended greenhouse culture and in new Can Am multipot containers. If successful, this will give the nursery some flexibility in both the timing of their crops and in the type of containers they are able to produce.

TREE IMPROVEMENT AND FOREST GENETICS

The major emphasis of the tree improvement program was to locate superior stands of black spruce in the southern seed zone and select cones and scion material from plus trees within these stands. Stands were identified and material was collected from 447 plus trees within these stands. This material will be used to establish a black spruce seed orchard for the southern part of the province.

The tree improvement facility that is located at the Pineland Provincial Forest Nursery at Hadashville was completed and three special crops are being grown in the facility at the current time. This includes seedlings for operational seed orchards and a large stock research program being carried out under the Canada/Manitoba Forest Renewal Agreement. This facility is an excellent addition to the Pineland Nursery complex and it provides the opportunity to produce superior seedling stock for the seed orchard and research programs.

The joint jack pine tree improvement program under the Canada/Manitoba Forest Renewal Agreement was accelerated with two seed orchards in the northern region being site prepared, planted, and fenced in the summer of 1986. In addition, cones were selected from superior stands of jack pine in the Interlake Region and sites were identified for seed orchards within the region.

TABLE 9: 1986/87 FOREST RENEWAL ACTIVITIES

	PROVINCE OF MANITOBA REGIONAL PROGRAM	ABITIBI PRICE	MANFOR
TREES PLANTED	6,074,500	1,309,000	2,827,000
HECTARES PLANTED - HAND	2,533	582	1,031
HECTARES SITE PREPARED	3,506	1,002	2,024
HECTARES SCARIFIED FOR NATURAL REGENERATION	433	2	662
HECTARES MECHANICALLY THINNED OR RELEASED	NIL	148	150
HECTARES HERBICIDED	154	520	51
HECTARES TREATED FOR INSECT OR DISEASE INFESTATION	359	NIL	NIL
HECTOLITRES OF CONES COLLECTED	687	29	206

FOREST PROTECTION AND DED

DUTCH ELM DISEASE

During the 1986 summer surveillance season, approximately 13,000 elms were examined in and around urban and rural municipalities. Of these, 2,948 were confirmed to have Dutch Elm Disease and 9,879 were classified as hazards, many of these probably dead as a result of Dutch Elm Disease (DED). Due to the large number of elms infected in wild stands throughout southern Manitoba, particularly in eastern and central regions, control efforts were again concentrated on elms in and around cost-sharing communities. Trees in the wild were largely ignored due to the impracticality of controlling the disease in those areas.

The number of municipalities with DED increased from 72 to 77 during 1986/87. Communities included major urban centres like Winnipeg, Brandon, Portage la Prairie, Carman and Selkirk as well as major parks such as the North West Angle Provincial Forest, Spruce Woods and Whiteshell Provincial parks and the Riding Mountain National Park. DED was observed for the first time this year in the Rural Municipalities of Ellice, Archie, Miniota, Wallace, Woodward, and Edward. Increases in number of diseased and dead trees were observed around Bissett, Nopiming Provincial Park, along Netley Creek watershed North of Teulon and along the Northeast shoreline of Lake Manitoba.

Although DED continues to increase in the wild stands, diseased elms in urban centres with control programs were comparably low. Less than one percent of Winnipeg's elms were diseased, and in Brandon, less than two percent of the elms were infected. Again, most of these trees are found in the wild stands along the riverbanks where control measures are less effective. The City of Winnipeg reported 3,218 samples taken this year of which 2,219 were confirmed DED and an additional 5,464 were marked as Hazards.

The disease has continued to increase along most of southern Manitoba's rivers. Large increases in disease have occurred on the Red and Assiniboine rivers around Winnipeg, along the Assiniboine to Portage la Prairie and Brandon and west of Brandon as far as the St. Lazare area. The Whitemud River around Westbourne has shown a considerable increase in disease, as well as the east escarpment of Riding Mountain National Park. The smaller river and creek systems

in south central Manitoba also experienced more pockets of infection, thus endangering the farm shelterbelts in the areas around Winkler, Altona, Morden and Carman. The Souris River southwest of Brandon was surveyed by air and reported to be extensively infected right into the United States and back into Saskatchewan. However, the natural elm population drops off just a few miles into Saskatchewan.

The community of Minnedosa which had one diseased tree in 1979 experienced one tree with DED this year. Neepawa which had three diseased trees in 1984 remained disease-free again this year. However, other communities such as Winkler, Morden, Ste. Anne and Souris experienced a considerable increase this year as compared to last. Some communities such as Carman, Deloraine, Stonewall, Gimli, Morris and Altona have shown favourable results from sanitation practises which have included pruning and basal spraying.

The first diseased tree in rural Manitoba this year was observed in St. Jean on May 28 and in the Winnipeg area about June 14. Once again, because of generally cool spring weather conditions and substantial infestation of cankerworms, external symptoms were delayed and sampling of diseased trees in any great numbers did not get started until the end of June. Most sampling was done in July and the first week in August.

From April 1 to October 31, 1986, the Provincial Dutch Elm Disease sanitation crew removed 3,292 elm trees. In addition, approximately 2,200 decadent elms were removed in Beaudry Provincial Park west of Winnipeg and the Brandon buffer zone during the winter works projects which ran from December 1985 to April 1986.

SPRUCE BUDWORM

Infestations in the Whiteshell Provincial Park and the southern Interlake Region continued for the 11th consecutive year. The Lake Winnipeg East infestation (now in its fifth year) persisted at severe levels. Considerable balsam fir mortality has occurred in the infestation areas.

Spray operations with Bacillus thuringiensis (BT - 20 B.I.U. per hectare) were carried out in two high use recreation areas. Spray efficacy was less than desirable at both locations. Results were:

LOCATION	HECTARES TREATED	LARVAL REDUCTION
HECLA ISLAND (TREATMENT AREA)	375	37%
UNTREATED PLOTS	-	18%
TULABI FALLS (TREATMENT AREA)	230	62%
UNTREATED PLOTS	-	45%

The results of the egg mass survey indicate a decline in the Interlake infestation. All sample locations are predicting light defoliation for 1987. Results from the Whiteshell and Lake Winnipeg East samples predict moderate and severe defoliation again in 1987.

JACK PINE BUDWORM

There was a noticeable decline in the jack pine budworm infestation in 1986. A major collapse occurred in the Northern and Interlake regions while localized infestations persisted in the Western and Southeastern regions. Widespread severe defoliation continued for a second year East of Lake Winnipeg into Ontario.

Based on the 1985 egg mass survey, a spray program for 34,000 hectares was initiated. Low pre-spray larval populations caused cancellation of 7,500 hectares at Sipiwesk, William Lake, Moose Lake, Wanless and Cowan. Application of Bacillus thuringiensis (Bt) at 20 B.I.U. per hectare was completed as follows:

	HECTARES TREATED	LARVAL REDUCTION
SANDILANDS		
Cat Hills	409	83%
Vasser	3,268	41%
Woodridge	14,694	69%
Fireguard Block	1,170	83%
Dawson Cabin	342	80%

	HECTARES TREATED	LARVAL REDUCTION
BELAIR		
Murray Hill	1,123	99%
Jackfish Lake	1,656	82%
Belair	392	47%
Traverse Bay	651	92%
COWAN		
Cowan	2,286	48%
KISSISSING		
Jenny Lake	364	61%
Naesap Lake	177	61%

Pheromone traps were placed in the field at 12 locations throughout the province. Male moth captures declined drastically from 1985 at all but two locations. Results were:

LOCATION	1985 MOTH CAPTURE	1986 MOTH CAPTURE
Moose Lake	95	4
St. Martins	960	129
Sandilands	512	60
Porcupine Mtns.	378	22
Wallace Lake	458	107
Belair	94	108
Spruce Woods	1080	504
Flin Flon	111	7
Simonhouse	84	12
Thompson	69	6
Lynn Lake	225	1
Whiteshell	107	122

Egg mass surveys to predict 1987 defoliation were carried out in all spray block locations. Results from all areas indicate nil or light defoliation for next year.

DWARF MISTLETOE

In Manitoba, dwarf mistletoe causes extensive damage reducing both the

quantity and quality of merchantable timber. Two species occur in the province; Arceuthobium americanum, attacking jack pine, and A. pusillum, attacking white and black spruce. Over the past three years, surveys, research and sanitation for this disease has been carried out under the Canada/Manitoba Forest Renewal Agreement.

In 1986 operational surveys were carried out in the Interlake, Western and Eastern regions to locate areas for harvesting and sanitation. Survey work also resulted in data collection for the ongoing research projects.

Two research projects funded by the Agreement are being delivered by the University of Manitoba Botany Department. A Ph.D. study, to further research the biology of A. americanum on jack pine under Manitoba conditions, is being carried out by J. Gilbert. This research should indicate vulnerable stages in the parasite's life cycle which can be taken advantage of in developing management plans. The other project carried out by T. Meyer is for the development of a loss simulator model. Taking into consideration stand volume, age, tree mortality, site conditions and the rate of dwarf mistletoe spread, the model will determine the cost-effectiveness of control and the most economically feasible time to harvest.

Sanitation treatments carried out for dwarf mistletoe consisted of post-logging treatments (removal of residual infections prior to reforestation), fuelwood production in heavily diseased unmerchantable stands, creation of disease free buffer zones (15 metres wide) to protect uninfected juvenile stands, and thinning and pruning of juvenile stands to reduce the disease to tolerable levels.

ARMILLARIA ROOT ROT

Armillaria root rot continues to be a problem in red pine plantations at a few locations in Eastern and Southeastern Manitoba. The disease has been found in plantations ranging in age from five to 50 years of age. In the younger plantations (five to 15 years) the decaying roots and stumps from the previous generation of trees (jack pine in all cases) appears to be the food base facilitating the build up of the fungus in the soil. The older plantations (35 to 50 years) have experienced the removal of suppressed red pine or residual

jack pine in recent years. This activity again, is believed to have supplied the food base as disease incidence occurs in the immediate vicinity of the removed trees. Infected trees have suffered substantial growth reduction and mortality. With considerable thinning now being carried out in red pine plantations, there is a concern this activity may trigger outbreaks of Armillaria.

An impact study initiated in 1983 has monitored active infection centres in 10, 12 and 13 year old plantations in Belair Provincial Forest. Within the five study plots, mortality due to Armillaria was 33.6 percent, 32.7 percent, 16.3 percent, 13.7 percent and 17.2 percent at the end of the 1986 field season. Over the 1986 field season the percent increase in mortality was 1.8 percent, 1.8 percent, 2.0 percent, 0.8 percent and 0 percent. The cummulative increase in mortality over the three year period has been 9.7 percent, 11.5 percent, 7.2 percent, 3.8 percent and 4.0 percent. The disease although still active in these localities appears to be spreading at a slower rate.

WHITE PINE WEEVIL

White Pine weevil (Pissodes strobi) has become a chronic problem in approximately 1100 hectares of white spruce plantations located in the Interlake Region of Manitoba. Although sanitation pruning was carried out on 185 hectares in 1984 and 1985 the infestation entered its fifth consecutive year expanding into surrounding areas. The entire plantation area was surveyed this past summer to determine weevil distribution. Sanitation pruning was carried out on 200 hectares based on survey results.

The removal of competing poplar within the white spruce rows over the past five years may have contributed to the increase in weevil numbers. Silvilcultural prescriptions may require modification in white spruce plantations as the weevil is a sun loving insect preferring open growing trees.

THE FORESTRY INITIATIVES

ANNUAL REPORT

1986 - 1987

THE FORESTRY INITIATIVES

The Canada/Manitoba Forest Renewal Agreement and the Jobs Fund Sectoral Project in Forestry make up the forestry initiatives. These two bring supplemental funding to existing forestry branch funds and programs. In 1986, ERIC/ Jobs Fund approved an additional $1,445,700. for Agreement and Sectoral projects. Although most of the additional funding went into programs in the Sectoral area, there were some expenditures in the Agreement as well. The additional monies allowed the forestry initiative to be put substantially back on target with its five year and 20 year plans. The funding was used for an update on the GIS System, cold storage building infrastructure at Pineland Nursery, regional forestry activities and nursery equipment and supplies.

CANADA/MANITOBA FOREST RENEWAL AGREEMENT

In 1984, the governments of Canada and Manitoba signed a five year, $27 million forestry agreement aimed specifically at forest renewal, intensive forest management, applied research and technology transfer, and public information. These programs have been designed to address the broad objectives of security and expansion of Manitoba's timber supply.

FOREST RENEWAL

Under the portion of the Canada/Manitoba Forest Renewal Agreement funded directly by Canada, Abitibi-Price continued their survey (3,395 hectares), site preparation and seeding initiatives, planting approximately 712,400 seedlings. Manfor surveyed 2,261 hectares, collected 158 hectolitres of cones and planted approximately 825,000 seedlings. Under provincial direct funding, a cold storage building at the Pineland Provincial Nursery began construction and is now 67 percent complete. Reforestation and scarification efforts continued and cones were collected.

INTENSIVE FOREST MANAGEMENT

Dwarf Mistletoe control activities continued. Over 154 hectares of infected trees were treated, salvaging 30 M^3 of fuelwood. Aerial and ground surveys were conducted on 4500 square kilometres.

Abitibi Price continued their strong focus on thinning, herbiciding 148 hectares. Manfor also continued their thinning projects.

APPLIED RESEARCH, TECHNOLOGY TRANSFER, OPPORTUNITY IDENTIFICATION AND NURSERY DEVELOPMENT

APPLIED RESEARCH - Research on the environmental impacts of aerial spraying on vegetation and acquatic ecosystems has been executed on schedule. Following the development of a procedures manual, the results were relayed to Abitibi-Price. A stand management workshop involving 50 people was held, and deemed successful. Seven reports detailing silvicultural projects of special interest are being prepared, as are signs to mark the plot on-site. The capabilities of the "FORIST" system were expanded to include plot location overlay procedures.

TECHNOLOGY TRANSFER - A GIS (Geographic Information System) workshop was held in the winter in Winnipeg and brought together experts from across the country and the United States for several days of information sharing and presentations.

Several studies on forest economics have been completed. These include: Economics of Intensive Forest Management, Timber Valuation/Damage Appraisal and Industrial Structure.

Monitoring of insect and disease problems in plot areas continued. Regeneration efforts, site classification and jack pine seed orchard programs also progressed during the year.

Under the national communications strategy, four television commercials aired and a series of print ads ran over a period of two months. This is an ongoing project to raise the level of forestry awareness across the country.

NURSERY DEVELOPMENT - Approximately 2,378,725 bareroot seedlings were lifted, packed and shipped, while 40 hectares were tended at the Pineland Nursery. Growth monitoring was conducted for the first time this year and growth curves established. Four million seedlings were grown at Clearwater Provincial Nursery. A central storage and a shipping/receiving area were constructed in the seedling line building.

PUBLIC INFORMATION, EVALUATION AND ADMINISTRATION - A new brochure on the Canada/Manitoba Forest Renewal Agreement was developed for printing next fiscal year. Brochures on insect and disease problems were reprinted to meet with the public demand. New video equipment was obtained including an editor to develop the inhouse capability for production.

SUMMARY BY PROGRAM 1986 - 1987

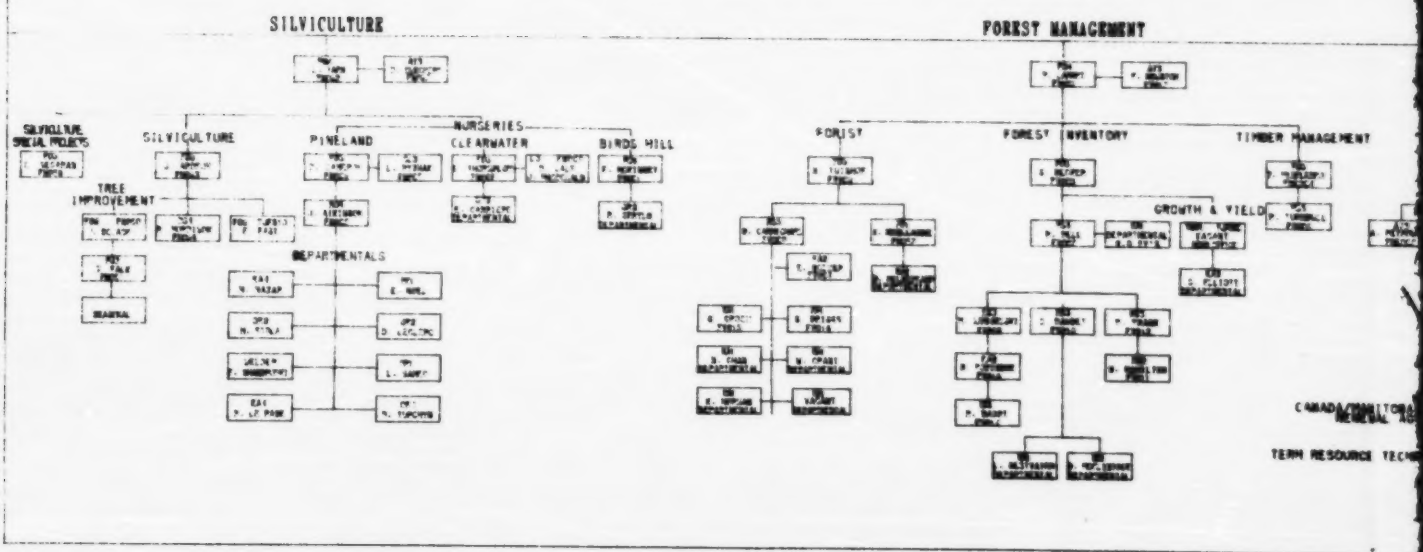
	100% PROVINCIAL		50/50		100% FEDERAL	
	ALLOTTED	EXPENDED	ALLOTTED	EXPENDED	ALLOTTED	EXPENDED
PROGRAM "A" - Forest Renewal	1724.5	1600.3	-	-	365.2	349.7
PROGRAM "B" - Intensive Forest Management	280.0	259.5	-	-	733.9	696.9
PROGRAM "C" - Applied Research, Tech. Transfer, Opport. Ident. & Nursery Development	1056.0	1024.6	710.0	650.9	498.7	492.7
PROGRAM "D" - Public Information, Evaluation and Administration	6.0	5.3	-	-	230.7	234.7
AGREEMENT TOTALS 1986-87	$ 3066.5	2889.7	$ 710.0	650.9	$ 1828.5	1774.0

JOBS FUND SECTORAL PROJECT IN FORESTRY

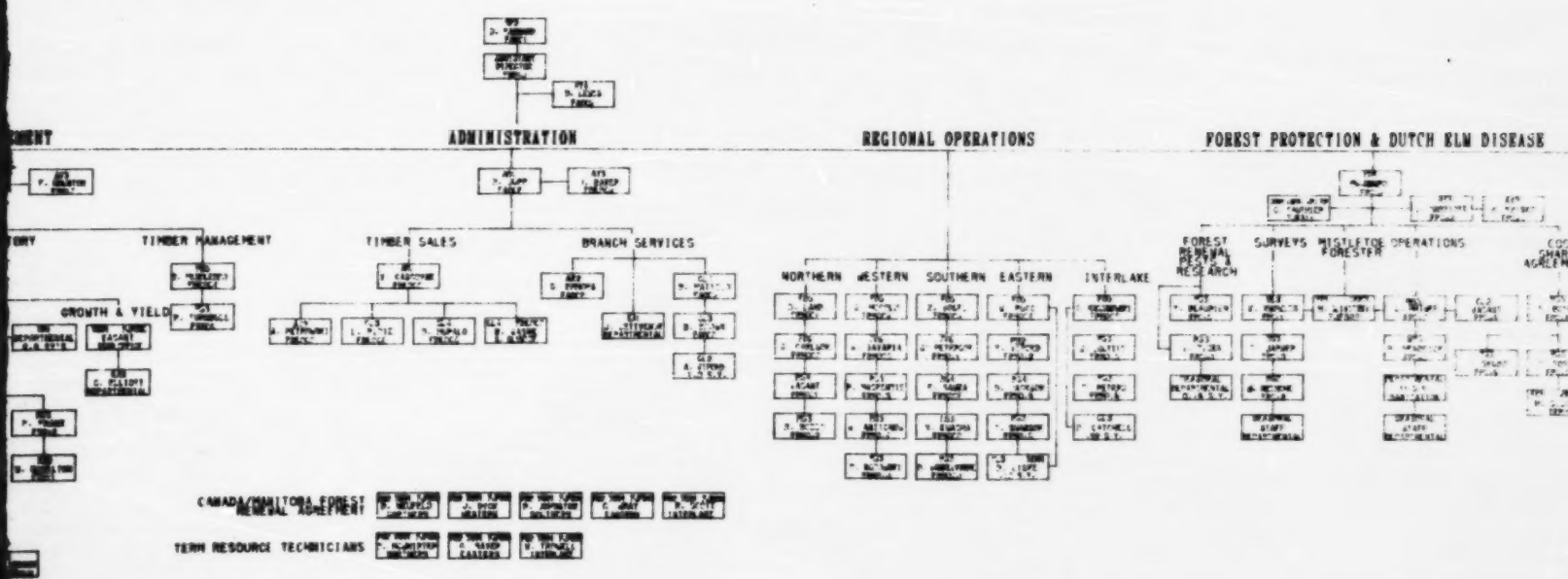
The sectoral project in Forestry under the Jobs Fund has been treated as an extension of the Canada/Manitoba Forest Renewal Agreement and has been managed in a similar manner. Expenditures under the Jobs Fund in this past year were $4,287,005.40. This includes the additional monies previously identified.

The four programs - forest renewal, forest management, nursery development and public information continued to support projects under the Agreement. As part of forest renewal, 3,442,097 trees were planted, 270 hectolitres of cones were collected, and 1538 hectares of land were scarified and site prepared. Other projects resulted in 27,134 hectares sprayed for jack pine budworm, 2.8 kilometres of the Kinwow Bay Road constructed and 40 metres of culverts installed on the road. The GIS FORIST system was further developed and 820 air photo mosaics were completed. Funding under the Sectoral Project also assisted in the operation at both Pineland and Clearwater nurseries.

FORESTRY BRANCH ORGA



FORESTRY BRANCH ORGANIZATION CHART



PROPOSED MARCH 1987